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Relevan

1 Java bytecode compression for low-end embedded systems
Lars Ræder Clausen, Ulrik Pagh Schultz, Charles Consel, Gilles Muller
May 2000 **ACM Transactions on Programming Languages and Systems (TOPL**
Volume 22 Issue 3
Full text available: ▣ pdf(241.04   Additional Information: full citation, abstract, referenc‹
KB)   index terms, review

A program executing on a low-end embedded system, such as a smart-card, faces ⦂
memory resources and fixed execution time constraints. We demonstrate that facto
common instruction sequences in Java bytecode allows the memory footprint to be
average, to 85% of its original size, with a minimal execution time penalty. While p
Java compatibility, our solution requires only a few modifications which are straight
implement in any JVM used in a low-e ...

Keywords: Java bytecode, code compression, embedded systems

2 FACADE: a typed intermediate language dedicated to smart cards
Gilles Grimaud, Jean-Louis Lanet, Jean-Jacques Vandewalle
October 1999 **ACM SIGSOFT Software Engineering Notes , Proceedings of the**
European engineering conference held jointly with the 7th ACM
international symposium on Foundations of software engineeri
24 Issue 6
Full text available: ▣ pdf(1.23 MB) Additional Information: full citation, abstract, referenc‹
index terms

The use of smart cards to run software modules on demand has become a major bι
concern for application issuers. Such down-loadable executable content needs to be
the card execution environment in order to ensure that an instruction on a memory
compliant with the definition of the data stored in this area (i.e. its type). Current s
smart cards rely on three techniques. For Java Card, either an off-card verifier-con∖
performs a static ...

3

Computer security (SEC): Java bytecode verification on Java cards
Roberto Barbuti, Stefano Cataudella
March 2004 **Proceedings of the 2004 ACM symposium on Applied computing**
Full text available: 📄 pdf(236.57   Additional Information: full citation, abstract, reference
KB)   terms

A Java program is usually translated into an intermediate language, known as Java
Machine Language (JVML), which is then executed by a Java Virtual Machine (JVM).
execution a JVML program is verified to prevent a wide range of run-time errors. No
Java applets are available for various kinds of portable devices, including modern Ja
cards. However, Java cards cannot execute the classical verification algorithms, due
very small amount of working memory.We ...

Keywords: Java bytecode, Java card, abstract interpretation

4 A java virtual machine architecture for very small devices
Nik Shaylor, Douglas N. Simon, William R. Bush
June 2003 **ACM SIGPLAN Notices , Proceedings of the 2003 ACM SIGPLAN co**
on Language, compiler, and tool for embedded systems, Volume 38
Full text available: 📄 pdf(182.85   Additional Information: full citation, abstract, reference
KB)   terms

The smallest complete Java™ virtual machine implementations in use today are bas
CLDC standard and are deployed in mobile phones and PDAs. These implementatior
several tens of kilobytes. Smaller Java-like implementations also exist, but these in
compromises in Java semantics. This paper describes a JVM™ architecture designec
small devices. It supports all the CLDC Java platform semantics, including exact gai
collection, dynamic class loading, and v ...

Keywords: CLDC, JVM, java, limited-memory devices, next generation smart cards

5 Smart card: Is the performance of smart card cryptographic functions the real I
Konstantinos Markantonakis
June 2001 **Proceedings of the 16th international conference on Information s**
Trusted information: the new decade challenge
Additional Information: full citation, abstract, references, index terms

It is generally believed that among the major delaying factors of smart card perforr
speed of the cryptographic algorithms. This is only partially true, as a number of otl
that add substantial delays to the overall performance of a smart card application s
be taken into account. In this paper we analyse the significance of these delaying fa
Furthermore, we also present some performance measurements of the two most wi
terminal application programming ...

Keywords: Java cards, cryptographic algorithms, multi-application, performance
measurements, smart cards, terminal APIs

6 Proceedings - only: New channels, old concerns: scalable and reliable data dissemination

Colin Allison, Duncan McPherson, Dirk Husemann

September 2000 **Proceedings of the 9th workshop on ACM SIGOPS European beyond the PC: new challenges for the operating system**

Full text available: 📄 pdf(76.39 KB) Additional Information: full citation, abstract, reference

> An interesting trend in the continuing convergence of information technologies is th emergence of the Internet as a content provider in its own right, as opposed to its s one of many delivery channels. For example, it is increasingly the primary source fc such as court rulings and software releases. Unfortunately the IP protocols normall\ for reliable data transfer are of the point-to-point type and not well suited to large-s to-many dissemination. Sudden rush ...

7 Proactive secure message transmission in asynchronous networks

Michael Backes, Christian Cachin, Reto Strobl

July 2003 **Proceedings of the twenty-second annual symposium on Principles distributed computing**

Full text available: 📄 pdf(1.07 MB)   Additional Information: full citation, abstract, reference terms

> We study the problem of secure message transmission among a group of parties in asynchronous network, where an adversary may repeatedly break into some partie: transient periods of time. A solution for this task is needed in order to use proactive cryptosystems in wide-area networks with loose synchronization. Parties have acce: secure hardware device that stores some cryptographic keys, but can carry out onl\ limited set of operations. We provide a formal model of t ...

> **Keywords**: proactive security, secure communication

8 Maté: a tiny virtual machine for sensor networks

Philip Levis, David Culler

October 2002 **Tenth international conference on architectural support for pro languages and operating systems on Proceedings of the 10th international conference on architectural support for programn languages and operating systems (ASPLOS-X)**, Volume 37 , 30 , 3 5 , 5

Full text available: 📄 pdf(1.22 MB) Additional Information: full citation, abstract, reference

> Composed of tens of thousands of tiny devices with very limited resources ("motes' networks are subject to novel systems problems and constraints. The large number a sensor network means that there will often be some failing nodes; networks must repopulate. Often there is no feasible method to recharge motes, so energy is a pre resource. Once deployed, a network must be reprogrammable although physically ι and this reprogramming can be a significan ...

9 Executable JVM model for analytical reasoning: a study

Hanbing Liu, J Strother Moore
June 2003 **Proceedings of the 2003 workshop on Interpreters, Virtual Machir Emulators**
Full text available: ■ pdf(230.18 KB) Additional Information: full citation, abstract, reference terms

To study the properties of the Java Virtual Machine(JVM) and Java programs, our re group has produced a series of JVM models written in a functional subset of Commc this paper, we present our most complete JVM model from this series, namely, M6, derived from a careful study of the J2ME KVM [16] implementation.On the one han(model is a conventional machine emulator. M6 models accurately almost all aspects implementation, including the dynamic class lo ...

10 Formalizing the safety of Java, the Java virtual machine, and Java card
Pieter H. Hartel, Luc Moreau
December 2001 **ACM Computing Surveys (CSUR)**, Volume 33 Issue 4

Full text available: ■ pdf(442.86 KB) Additional Information: full citation, abstract, reference index terms

We review the existing literature on Java safety, emphasizing formal approaches, a impact of Java safety on small footprint devices such as smartcards. The conclusion although a lot of good work has been done, a more concerted effort is needed to bu coherent set of machine-readable formal models of the whole of Java and its impler This is a formidable task but we believe it is essential to build trust in Java safety, a to achieve ITSEC level 6 or Common Crite ...

Keywords: Common criteria, programming

11 Compiling java for low-end embedded systems
Ulrik Pagh Schultz, Kim Burgaard, Flemming Gram Christensen, Jørgen Lindskov Knuc
June 2003 **ACM SIGPLAN Notices , Proceedings of the 2003 ACM SIGPLAN cor on Language, compiler, and tool for embedded systems**, Volume 38
Full text available: ■ pdf(267.00 KB) Additional Information: full citation, abstract, reference terms

The production of embedded systems is continuously increasing, but developing reu software for such systems is notoriously difficult, in particular in the case of low-en(systems based on 16-bit or 8-bit processors. We have developed a compilation syst executing Java byte code on low-end embedded systems, and we demonstrate how permits object-oriented programming techniques to be used on devices with only a hundred bytes of RAM and a few kilobytes of ROM.We an ...

Keywords: Java, compilers, embedded systems, interfaces

12 Web technologies and applications (WTA): Cookies on-the-move: managing c(smart card
Alvin T. S. Chan

March 2004 Proceedings of the 2004 ACM symposium on Applied computing

Full text available: pdf(335.19
KB)   Additional Information: full citation, abstract, reference

Despite the widespread use and adoption of cookies as the basis for web application
state information, cookies present some design issues that are yet to be fully addre
fact that cookies are stored on client-side's memory means that they are tightly cou
machine that is interacting with the web server. Yet often, these cookies are initiate
applications to identify user's preferences and identifications. As the user moves acı
different machines to access the ...

Keywords: Web, cookies, mobile, smart card

13 Session S4.2: program transformation: Leakage-proof program partitioning
Tao Zhang, Santosh Pande, Andre dos Santos, Franz Josef Bruecklmayr
October 2002 **Proceedings of the international conference on Compilers, arch
and synthesis for embedded systems**

Full text available: pdf(231.35   Additional Information: full citation, abstract, reference
KB)   index terms

Due to limited available memory (of the order of Kilobytes) on embedded devices (:
smart cards), we undertake an approach of partitioning a whole program. The prog
partitions are down-loaded from the server on demand into the embedded device jı
execution. We devise a novel method of partitioning the code and data of the progr
that no information regarding the control flow and behavior of the program is leake
other words, by observing the program partitions that ...

Keywords: mobile code, multi-application smart card, program partitioning, tampe

14 JML (poster session): notations and tools supporting detailed design in Java
Gary T. Leavens, Clyde Ruby, K. Rustan, M. Leino, Erik Poll, Bart Jacobs
January 2000 **Addendum to the 2000 proceedings of the conference on Objec
programming, systems, languages, and applications (Addenduı**

Full text available: pdf(70.62 KB) Additional Information: full citation, abstract, reference
                                                    index terms

JML is a notation for specifying the detailed design of Java classes and interfaces. Jl
assertions are stated using a slight extension of Java's expression syntax. This shou
easy to use. Tools for JML aid in static analysis, verification, and run-time debuggin
code.

Keywords: ESC/Java, JML language, Java language, LOOP, behavioral interface sp
language, detailed design notation

15 A web-enabled framework for smart card applications in health services
Alvin T. S. Chan, Jiannong Cao, Henry Chan, Gilbert Young
September 2001 **Communications of the ACM**, Volume 44 Issue 9

Full text available: pdf(208.56 KB) html (29.84 KB)   Additional Information: full citation, references, citings terms

16 Computer applications in health care: Integrating smart card access to Web-ba medical information systems
Alvin T. S. Chan
March 2003 **Proceedings of the 2003 ACM symposium on Applied computing**

Full text available: pdf(504.51 KB)   Additional Information: full citation, abstract, reference terms

This paper examines the application of smart cards in the development of distribute information systems. The pocket mobility and security features of smart cards make ideal medium for storing the critical medical records of individual. However, the lacl interoperability and support for distributed operation has limited the development a smart cards in a networked environment. This paper highlights the benefits of comb World Wide Web and smart card technolo ...

Keywords: Web, health care, mobile, smart card

17 P6: Document-based inter-organizational information exchange
Reinhard Riedl
October 2001 **Proceedings of the 19th annual international conference on Con documentation**

Full text available: pdf(217.62 KB)   Additional Information: full citation, abstract, reference terms

In this paper, we present tour research work on document services for interstate e-carried out in the FASME project. First, we depict the background for our research a describe its basic challenges. Then we discuss the required services out of the persp inter-organizational document services and documentation issues. From the evaluat prototypical implementation with user groups, we may conclude that interstate e-g services are feasible and that life w ...

Keywords: e-government, inter-organizational work-flows

18 A formal framework for the Java bytecode language and verifier
Stephen N. Freund, John C. Mitchell
October 1999 **ACM SIGPLAN Notices , Proceedings of the 14th ACM SIGPLAN on Object-oriented programming, systems, languages, and app**

Volume 34 Issue 10

Full text available: 📄 pdf(1.93 MB)   Additional Information: full citation, abstract, reference index terms

This paper presents a sound type system for a large subset of the Java bytecode lai including classes, interfaces, constructors, methods, exceptions, and bytecode subr This work serves as the foundation for developing a formal specification of the byte language and the Java Virtual Machine's bytecode verifier. We also describe a proto implementation of a type checker for our system and discuss some of the other apF this work. For example, we show how to exte ...

19 Upfront
Linux Journal Staff
December 2002 Linux Journal, Volume 2002 Issue 104

Full text available: 📄 html(11.49 KB)   Additional Information: full citation, index terms

20 Muscle Flexes Smart Cards into Linux
David Corcoran
August 1998 Linux Journal

Full text available: 📄 html(16.89 KB)   Additional Information: full citation, abstract, index ter

The newest kind of card for your pocketbook offers better security for the informati

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